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10/810,660	03/29/2004	Wen-Jian Lin	QCO.091A/061121	1130

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EXAMINER

STARK, JARRETT J

ART UNIT	PAPER NUMBER
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2823

DATE MAILED: 10/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/810,660

Applicant(s)

LIN, WEN-JIAN

Examiner

Jarrett J. Stark

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 18 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 4, 7, 10, 13 and 19 is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 6, 11, 12, 14, 15, 17, 18 and 20-37 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 9/18/2006.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Response to Arguments*

Applicant's arguments filed 9/18/2006 have been fully considered but they are not persuasive.

The applicant's representative argues that Miles (US 5,835,255) does not disclose that the conductor layer is susceptible to etching by an etchant suitable to remove the sacrificial layer. As stated by the Applicant's Remarks dated 9/18/2006, the Miles reference discloses that the sacrificial layer is water soluble and removed by water. In this described process water is etching the sacrificial layer to release suspended overlying layers. The limitation of the conducting layer being susceptible to the etchant does not methodically distinguish the invention over the prior art of record.

Structural Elements recited in the claim must manipulatively distinguish the claim from the prior art to have patentable weight.

"To be entitled to patentable weight in method claims, the recited structural limitations therein must affect the method in a manipulative sense and not amount to mere claiming of a use of a particular structure."

Ex parte Pfeiffer, 135 USPQ 31, k 33 (Bd. Pat. App & Inter. 1961). Put another way, "patentability of a method claim must rest on the method steps recited, not on the

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structure used, unless that structure affects the method steps.” *Leesona Corp. v. U.S.*, 185 USPQ 156, 165 (Ct. Cl. Trial div. 1975) *aff’d* 192 USPQ 672 (Ct. Cl. 1976).

In *Ex parte Pfeiffer*, 135 USPQ 31, 33 (Bd. Pat. App. & Inter. 1961) the claims set forth a method of dropping a rubber bag out of a airplane without the use of a parachute to transport free flowing material inside the bag to the ground. The applicant argued that the reference applied by the examiner did not use a rubber bag having walls of extremely high tensile strength capable of stretching several hundred percent and which was oblate in shape. The Board upheld the rejection based on the fact that the bag of the prior art is manipulated (filled, dropped, allowed to fall and a opened after impact) as claimed and that the structural differences of the bag do not alter these basic steps. In *Leeson Corp. v. U.S.*, 185 USPQ 156, 165 (Ct. Cl. Trial div. 1975) *aff’d* 192 USPQ 672 (Ct. Cl. 1976) the claim was directed to a method of recharging a battery having a gas permeable nonconsumable envelope cathode in which the spent anode was removed from the nonconsumable envelope cathode and replaced with a fresh anode. The court stated that, in this case, it is apparent that the claimed method steps are not affected by the claimed cathode structure since the very same method would be used with the box cathode of *Heise*.” 185 USPQ at 165. The methods of recharging a battery “cannot be transformed into a patentably new one merely by using it to recharge a battery having cathode not shown in the prior art.” *Id.* At 165 (emphasis added).

***Allowable Subject Matter***

**Claims 4, 7, 10, 13, 16, and 19 are allowed.**

The following is a statement of reasons for the indication of allowable subject matter:

The primary reason the indication of allowable subject matter is the limitation of a spacer on the side wall of the second electrode. The prior art does not teach the formation of a spacer on the sidewall of the second electrode. This limitation in combination with all other limitations included in the independent claim, make a clear distinction from the searched and cited prior art.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 1, 2, 3, 5, 6, 11, 12, 14, 15, 18, 29, 24 - 28, 31, 32, 36 and 37 are rejected under 35 U.S.C. 102(b) as being anticipated by Miles (US 5,835,255).**

Regarding claims 1, 17 and 27, Miles discloses a pre-release structure configured to form a micro electro mechanical system, upon removal of a sacrificial layer through a structure release etch process, said micro electro mechanical system suitable to use on an optical interference display cell, said micro electro mechanical system suitable to use on an optical interference display cell, the pre-release:

a first electrode; (Miles , Fig. 21A - [502], Fig. 27)

a second electrode; (Miles, Fig. 21A - [506], & Fig. 27)

a first material layer; and (Miles, Fig. 2A – see response to argument above)

a conductor layer set on the first material layer and approximately in

parallel to the first electrode wherein the first material layer is positioned between the conductor layer and the first electrode; (Miles, Fig. 21A - [502])

a sacrificial layer positioned between the first material layer and the first electrode; and (Miles, Fig. 25M-N)

a supporter configured to separate the first electrode and the first material layer to form a cavity upon structure release etching; (Miles, Fig. 21A - [504])

(Miles, Col. 20 lines 55-57 → 900 is symbolizes both the support membrane & conductor/electrode [506] and the substrate [500] & conductor/electrode shown in Fig. 21)



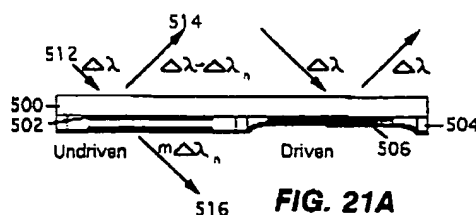
**FIG. 27A**



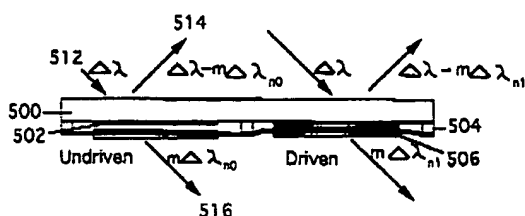
**FIG. 27B**



**FIG. 27C**



**FIG. 21A**



Regarding claim 2, 24, 25, 28, 36, the claims cited are given no patentable weight. Product-By-Process claims are not limited to the manipulations of the recited steps, only the structure implied by the steps.

"Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) (citations omitted) (Claim was directed to a novolac color developer. The process of making the developer was allowed. The difference between the inventive process and the prior art was the addition of metal oxide and carboxylic acid as separate ingredients instead of adding the more expensive pre-reacted metal carboxylate. The product-by-process claim was

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rejected because the end product, in both the prior art and the allowed process, ends up containing metal carboxylate. The fact that the metal carboxylate is not directly added, but is instead produced in-situ does not change the end product.).

**Also regarding claim 24, 36,** Miles teaches using a photoresist. Using a photoresist is standard practice in the art.

**Also regarding claim 25,** Miles teaches using ITO for the conducting layers.  
(Miles, col. 21 line 13 → ITO)

**Regarding claim 3,** Miles discloses the pre-release structure of claim 1, further comprising a second material layer covering the second electrode. (Miles, Fig. 27A - [904])

**Regarding claim 5,11, 29, 31,** Miles discloses the pre-release structure of claim 1, wherein the material of the first material layer is selected from the group consisting of **silicon material**, **dielectric material**, transparent conductor material, cromolecule polymer, metal oxide and any arbitrary combination thereof. (Miles, col. 19 line 58 → silicon nitride)

**Regarding claim 6,12, & 18,** Miles discloses the pre-release structure of claim 3, wherein the material of the second material layer is selected from the group consisting of silicon material, **dielectric material**, transparent conductor material, macromolecule



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polymer, metal oxide and any arbitrary combination thereof. (Miles, Fig. 27A - [904] → insulator)

**Regarding claim 14, Miles discloses the pre-release structure of claim 5, wherein the transparent conductor material is indium tin oxide, indium zinc oxide, or indium oxide. (Miles, col. 21 line 13 → ITO)**

**Regarding claim 15, 32, Miles discloses the pre-release structure of claim 6, wherein the transparent conductor material is indium tin oxide, indium zinc oxide, or indium oxide. (Miles, col. 21 line 13 → ITO)**

**Regarding claim 26 and 37, Miles discloses the structure of a micro electro mechanical system of claim 1 & 27, wherein the second electrode is a movable electrode.**

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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**Claims 8, 9, 30, 34, and 35** rejected under 35 U.S.C. 103(a) as being unpatentable over Miles (US 5,835,325) in view of Gotoh et al. (US 5,824,608).

**Regarding claim 8,9, 20-23, 30, 34, 35, Miles** discloses the pre-release structure of claim 5,

Miles does not expressly disclose wherein the silicon material is poly-silicon or amorphous silicon.

Gotoh discloses wherein the silicon material is poly-silicon.

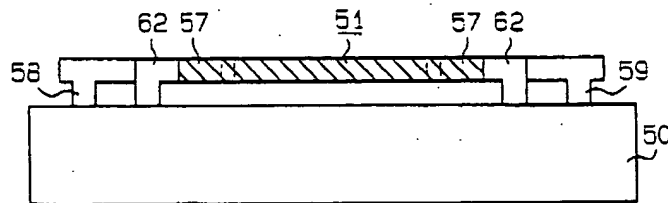
The References are analogous art because they are from the same field of endeavor, which is making a movable electrode.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use polysilicon as a support membrane.

Therefore, it would have been obvious to combine the two references to obtain the invention as specified.

*A movable portion 51 of a beam structure is disposed above a silicon substrate 50 with a prescribed gap therebetween. The movable portion 51 of a polysilicon thin film comprises beam portions 52, 53, 54 and 55, weight portion 56 and movable electrode portions 57. (Gotoh, Col. 1, lines 32-37)*

*FIG. 41* PRIOR ART



**Regarding claims 20 – 23, 34, 35,** It would have been obvious to one of ordinary skill in the art of making semiconductor devices to determine the workable or optimal value for the layer thicknesses through routine experimentation and optimization to obtain optimal or desired device performance because the layer thicknesses is a result-effective variable and there is no evidence indicating that it is critical or produces any unexpected results and it has been held that it is not inventive to discover the optimum or workable ranges of a result-effective variable within given prior art conditions by routine experimentation. See MPEP 2144.05

Given the teaching of the references, it would have been obvious to determine the optimum thickness, temperature as well as condition of delivery of the layers involved. See *In re Aller, Lacey and Hall* (10 USPQ 233-237) "It is not inventive to discover optimum or workable ranges by routine experimentation." Note that the specification contains no disclosure of either the critical nature of the claimed ranges or any unexpected results arising therefrom. Where patentability is said to be based upon

particular chosen dimensions or upon another variable recited in a claim, the Applicant must show that the chosen dimensions are critical. In re Woodruff, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

Any differences in the claimed invention and the prior art may be expected to result in some differences in properties. The issue is whether the properties differ to such an extent that the difference is really unexpected. In re Merck & Co., 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Appellants have the burden of explaining the data in any declaration they proffer as evidence of non-obviousness. Ex parte Ishizaka, 24 USPQ2d 1621, 1624 (Bd. Pat. App. & Inter. 1992).

An Affidavit or declaration under 37 CFR 1.132 must compare the claimed subject matter with the closest prior art to be effective to rebut a prima facie case of obviousness. In re Burckel, 592 F.2d 1175, 201 USPQ 67 (CCPA 1979).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jarrett J. Stark whose telephone number is (571) 272-6005. The examiner can normally be reached on Monday - Thursday 7:00AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Smith can be reached on (571) 272-1907. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JJS

October 11, 2006

  
MICHELLE ESTRADA  
PRIMARY EXAMINER